CLAIMS

What is claimed is:

1. A method comprising:

setting a time domain reflectometry (TDR) pulse count to a predetermined number;

transmitting a TDR pulse, the width of the TDR pulse being a function of the multiplication of the TDR pulse count with the period of a TDR clock;

detecting whether the TDR pulse has been reflected; and

if the TDR pulse has not been reflected, successively increasing the TDR pulse count to successively increase the width of the transmitted TDR pulse until a reflection is detected.

2. The method of claim 1, wherein if a reflection of the TDR pulse has been detected, further comprising calculating and recording the distance to an open on a cable associated with the reflected TDR pulse.

3. The method of claim 2, further comprising, generating a message to a network administrator regarding the open on the cable.

4. The method of claim 1, wherein if a reflection of the TDR pulse has not been detected by a short-haul open detection process, implementing a long-haul open detection process.

5. The method of claim 4, wherein the long-haul open detection process includes transmitting a TDR pulse of greater width than in the short-haul open detection process, the width of the TDR pulse being a function of the multiplication of an increased TDR pulse count with the period of the TDR clock.

6. The method of claim 5, wherein the long-haul open detection process further comprises:

detecting whether the TDR pulse has been reflected; and

if not, successively increasing the TDR pulse count, upto a long-haul threshold, to successively increase the width of the transmitted TDR pulse until a reflection has been detected.

7. The method of claim 6, wherein if a reflection of the TDR pulse has been detected, the long-haul open detection process further comprises:

determining if the reflection should have been detected during the short-haul open detection process; and

if so, increasing a dead-band factor and transmitting another TDR pulse.

8. The method of claim 7, wherein if a reflection of the TDR pulse has been detected, the long-haul open detection process further comprising calculating and recording the distance to an open on a cable associated with the reflected TDR pulse.

9. The method of claim 8, further comprising, generating a message to a network administrator regarding the open on the cable.

10. The method of claim 6, wherein at least one of the predetermined number for the (TDR) pulse count and the long-haul threshold is programmable.

11. The method of claim 7, wherein the dead-band factor is programmable.

12. A Line Interface Unit (LIU) integrated circuit comprising:

time domain reflectometry (TDR) control logic including:

a TDR pulse generator coupled to a TDR clock, the TDR pulse generator to generate a TDR pulse which is then transmitted through a cable, the width of the TDR pulse being a function of the multiplication of a TDR pulse count with the period of the TDR clock; and

a TDR processor coupled to the TDR pulse generator and a reflection detector, the reflection detector to detect whether the TDR pulse has been reflected;

wherein, if a reflection is not detected, the TDR processor to successively increase the TDR pulse count to successively increase the width of the transmitted TDR pulse generated by the TDR pulse generator until a reflection is detected.

13. The LIU integrated circuit of claim 12, wherein if a reflection of the TDR pulse has been detected, the TDR processor to calculate and record the distance to an open on a cable associated with the reflected TDR pulse.

14. The LIU integrated circuit of claim 13, wherein the TDR processor generates a message to a network administrator regarding the open on the cable.

15. The LIU integrated circuit of claim 12, wherein if the reflection of the TDR pulse has not been detected by the reflection detector during a short-haul open detection process, the TDR processor implements a long-haul open detection process.

16. The LIU integrated circuit of claim 15, wherein the long-haul open detection process includes the TDR pulse generator transmitting a TDR pulse of greater width than in the short-haul open detection process, the width of the TDR pulse being a function of the multiplication of an increased TDR pulse count with the period of the TDR clock.

17. The LIU integrated circuit of claim 16, wherein the long-haul open detection process further comprises:

detecting whether the TDR pulse has been reflected utilizing the reflection detector; and

if not, the TDR processor to successively increase the TDR pulse count, upto a long-haul threshold, to successively increase the width of the TDR pulse transmitted by the TDR pulse generator until a reflection has been detected.

18. The LIU integrated circuit of claim 17, further comprising a TDR dead band generator, wherein if a reflection of the TDR pulse has been detected, the long-haul open detection process further includes:

the TDR processor to determine if the reflection should have been detected during the short-haul open detection process; and

if so, the TDR processor to command the TDR dead band generator to increase a dead-band factor and the TDR pulse generator to transmit another TDR pulse.

19. The LIU integrated circuit of claim 18, wherein if a reflection of the TDR pulse has been detected by the reflection detector, the TDR processor implementing the long-haul open detection process calculates and records the distance to an open on a cable associated with the reflected TDR pulse.

20. The LIU integrated circuit control logic of claim 19, further comprising, the TDR processor generating a message to a network administrator regarding the open on the cable.

21. The LIU integrated circuit of claim 17, wherein at least one of an initial number for the (TDR) pulse count and the long-haul threshold is programmable.

22. The LIU integrated circuit of claim 18, wherein the dead-band factor is programmable.

23. A system comprising:

an access device coupling a first network to a second network, the access device having at least one line card including at least one Line Interface Unit (LIU) integrated circuit that includes:

time domain reflectometry (TDR) control logic comprising:

a TDR pulse generator coupled to a TDR clock, the TDR pulse generator to generate a TDR pulse which is then transmitted through a cable, the width of the TDR pulse being a function of the multiplication of a TDR pulse count with the period of the TDR clock; and

a TDR processor coupled to the TDR pulse generator and a reflection detector, the reflection detector to detect whether the TDR pulse has been reflected;

wherein, if a reflection is not detected, the TDR processor to successively increase the TDR pulse count to successively increase the width of the transmitted TDR pulse generated by the TDR pulse generator until a reflection is detected.

24. The system of claim 23, wherein if a reflection of the TDR pulse has been detected, the TDR processor to calculate and record the distance to an open on a cable associated with the reflected TDR pulse.

25. The system of claim 24, wherein the TDR processor generates a message to a network administrator regarding the open on the cable.

26. The system of claim 23, wherein if the reflection of the TDR pulse has not been detected by the reflection detector during a short-haul open detection process, the TDR processor implements a long-haul open detection process.

27. The system of claim 26, wherein the long-haul open detection process includes the TDR pulse generator transmitting a TDR pulse of greater width than in the short-haul open detection process, the width of the TDR pulse being a function of the multiplication of an increased TDR pulse count with the period of the TDR clock.

28. The system of claim 27, wherein the long-haul open detection process further comprises:

detecting whether the TDR pulse has been reflected utilizing the reflection detector; and

if not, the TDR processor to successively increase the TDR pulse count, upto a long-haul threshold, to successively increase the width of the TDR pulse transmitted by the TDR pulse generator until a reflection has been detected.

29. The system of claim 28, further comprising a TDR dead band generator, wherein if a reflection of the TDR pulse has been detected, the long-haul open detection process further includes:

the TDR processor to determine if the reflection should have been detected during the short-haul open detection process; and

if so, the TDR processor to command the TDR dead band generator to increase a dead-band factor and the TDR pulse generator to transmit another TDR pulse.

30. The system of claim 29, wherein if a reflection of the TDR pulse has been detected by the reflection detector, the TDR processor implementing the long-haul open detection process calculates and records the distance to an open on a cable associated with the reflected TDR pulse.

31. The system of claim 30, further comprising, the TDR processor generating a message to a network administrator regarding the open on the cable.

32. The system of claim 28, wherein at least one of an initial number for the (TDR) pulse count and the long-haul threshold is programmable.

33. The system of claim 29, wherein the dead-band factor is programmable.

34. A machine-readable medium having stored thereon instructions, which when executed by a Line Interface Unit (LIU) integrated circuit, cause the LIU integrated circuit to perform the following operations:

setting a time domain reflectometry (TDR) pulse count to a predetermined number;

transmitting a TDR pulse, the width of the TDR pulse being a function of the multiplication of the TDR pulse count with the period of a TDR clock;

detecting whether the TDR pulse has been reflected; and

if the TDR pulse has not been reflected, successively increasing the TDR pulse count to successively increase the width of the transmitted TDR pulse until a reflection is detected.

35. The machine-readable medium of claim 34, wherein if a reflection of the TDR pulse has been detected, further comprising calculating and recording the distance to an open on a cable associated with the reflected TDR pulse.

36. The machine-readable medium of claim 35, further comprising, generating a message to a network administrator regarding the open on the cable.

37. The machine-readable medium of claim 34, wherein if a reflection of the TDR pulse has not been detected by a short-haul open detection process, implementing a long-haul open detection process.

38. The machine-readable medium of claim 37, wherein the long-haul open detection process includes transmitting a TDR pulse of greater width than in the short-haul open detection process, the width of the TDR pulse being a function of the multiplication of an increased TDR pulse count with the period of the TDR clock.

39. The machine-readable medium of claim 38, wherein the long-haul open detection process further comprises:

detecting whether the TDR pulse has been reflected; and

if not, successively increasing the TDR pulse count, upto a long-haul threshold, to successively increase the width of the transmitted TDR pulse until a reflection has been detected.

40. The machine-readable medium of claim 39, wherein if a reflection of the TDR pulse has been detected, the long-haul open detection process further comprises:

determining if the reflection should have been detected during the short-haul open detection process; and

if so, increasing a dead-band factor and transmitting another TDR pulse.

41. The machine-readable medium of claim 40, wherein if a reflection of the TDR pulse has been detected, the long-haul open detection process further comprising calculating and recording the distance to an open on a cable associated with the reflected TDR pulse.

42. The machine-readable medium of claim 41, further comprising, generating a message to a network administrator regarding the open on the cable.

43. The machine-readable medium of claim 39, wherein at least one of the predetermined number for the (TDR) pulse count and the long-haul threshold is programmable.

44. The machine-readable medium of claim 40, wherein the dead-band factor is programmable.